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Occupational Fatalities Among Driver/Sales Workers and Truck Drivers in the United States, 2003–2008

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Abstract

Background—This study provides a national profile of occupational fatalities among truck drivers and driver-sales workers.

Methods—Data from the 2003–2008 Census of Fatal Occupational Injuries were used. Cases were extracted specifically for occupational subcategories included in the Driver/Sales Workers and Truck Drivers occupational category: Driver/Sales Workers, Heavy and Tractor-Trailer Truck Drivers, and Light Truck or Delivery Services Drivers.

Results—In 2003–2008, the group Driver/Sales Workers and Truck Drivers had 5,568 occupational fatalities, representing 17% of all occupational fatalities in the United States. The majority of these fatalities were in the subgroup Heavy and Tractor-Trailer Truck Drivers (85%) and due to transportation incidents (80%). Older and male drivers had higher fatality rates than their counterparts.

Conclusions—Findings suggest a need for targeted interventions to reduce highway fatalities among heavy truck drivers. Better employment data are needed to separate the three occupational subcategories by worker characteristic and employment history for use in research and prevention efforts.

Keywords

CFOI; occupational fatalities; highway injuries; truck drivers; delivery/sales workers; motor vehicle safety

Introduction

According to the Bureau of Labor Statistics (BLS), approximately 3.3 million people, or 2.1% of the U.S. labor force, were employed in the overall category as *Driver/Sales Workers and Truck Drivers* in the United States in 2008 [BLS, 2010]. Among these drivers, 56%

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were classified as *Heavy and Tractor-Trailer Truck Drivers*, 31% as *Light Truck or Delivery Service Drivers*, and 13% as *Driver/Sales Workers*. In 2008, the group *Driver/Sales Workers and Truck Drivers* sustained 856 occupational fatalities, more fatalities than any other occupational category [BLS, 2011b]. Representing 2.1% of the U.S. labor force, they contributed 16% of all occupational fatalities in the United States.

Truck driver safety has gained increased attention in recent years due to the large numbers of fatalities and injuries among truck drivers in the United States. Most of the existing studies have focused on the risk of highway truck crashes and highway safety [Brady et al., 2009; Brodie et al., 2009; Bunn et al., 2009; Hanowski et al., 2009]. A number of studies examined the risk of occupational injuries and fatalities among truck drivers [Khorashadi et al., 2005; Birdsey et al., 2010; Chen and Chen, 2011; Bunn et al., 2012, 2013]. However, these studies were often on a small scale, used a convenience sample, or studied truck drivers in a specific subgroup such as independent owner operators or company drivers. Findings from these studies were often not generalizable to all truck drivers in the United States.

The objectives of this study were to describe the national profile of the nature and extent of occupational fatalities in the category *Driver/Sales Workers and Truck Drivers* and to identify potential risk factors associated with these fatalities. The overarching goal was to provide the industry, labor unions, regulatory agencies, and other stakeholders with the data needed to assist in establishing priorities and strategies intended to reduce occupational fatalities among the group *Driver/Sales Workers and Truck Drivers.*

Materials and Methods

Data Source and Case Selection

Data from the BLS Census of Fatal Occupational Injuries (CFOI) corresponding to the period 2003 to 2008 were used in this analysis. Established in 1992, CFOI provides a count of all fatal occupational injuries occurring in the United States [BLS, 2012a]. CFOI collects information from several federal, state, and local data sources, including death certificates, workers' compensation records, and reports to federal and state agencies to identify, verify, and describe fatal injuries [BLS, 2012b]. A fatal injury is considered as work-related if the event leading to the injury occurred while the employee was working for pay, working as a volunteer in the same functions as a paid employee, or present at a site as a job requirement [BLS, 2009]. Injury events are coded according to the *Occupational Injury and Illness Classification Manual* [BLS, 1992]. Occupation narratives are coded according to the Standard Occupational Classification (SOC) System [BLS, 2000]. The analysis was conducted using restricted CFOI data that the National Institute for Occupational Safety and Health (NIOSH) receives through a memorandum of understanding with BLS. The views expressed here do not necessarily reflect the views of the BLS.

Cases for this analysis were extracted specifically for occupational codes (SOC codes) included in the *Driver/Sales Workers and Truck Drivers* (53-3030) category: *Driver/Sales Workers* (53-3031), *Heavy and Tractor-Trailer Truck Drivers* (53-3032), and *Light Truck or Delivery Services Drivers* (50-3033). In this aricle, the following general terms will be used:

"truck drivers and driver-sales workers" for the occupational category *Driver/Sales Workers and Truck Drivers*, "driver-sales workers" for the occupational subcategory *Driver/Sales Workers*, "heavy truck drivers" for the occupational subcategory *Heavy and Tractor-Trailer Truck Drivers*, and "light truck drivers" for the occupational subcategory *Light Truck or Delivery Services Drivers*.

Employment estimates were derived from two different sources: the BLS Current Population Survey (CPS) data [BLS, 2007; U.S. Census Bureau, 2012b] and the BLS Occupational Employment Statistics (OES) data [BLS, 2011c]. CPS data were used to obtain the 2003–2008 employment estimates for truck drivers and driver-sales workers. CPS uses the 2002 Census Occupational Classification (COC) to code occupations [U.S. Census Bureau, 2003]. COC code 9130 corresponding to the category *Driver/Sales Workers and Truck Drivers* was selected; this code matches the SOC code of 53-3030 [U.S. Census Bureau, 2012a]. However, COC 9130 code does not have subcategories separating driver-sales workers, heavy truck drivers, and light truck drivers. Occupational Employment Statistics data were used to obtain employment estimates for these three occupational subcategories. OES uses the same occupational coding system (SOC) as the CFOI. SOC uses code 53-3031 for *Driver/Sales Workers*, 53-3032 *for Heavy and Tractor-Trailer Truck Drivers*, and 53-3033 for *Light Truck or Delivery Services Drivers*. OES does not have data on worker characteristics for the three occupational subcategories. Only a single year (2008) of OES data was used. BLS does not use or encourage the use of OES data for consecutive years because 1 year of OES estimates come from 3 years of data. For more information, see the OES frequently asked questions, question number 30, the "permanent features of OES methodology" section [BLS, 2011a].

Data Analysis

The employment estimates obtained from CPS data were used for computing the fatality rates for the group of truck drivers and driver-sales workers from 2003 to 2008. Fatality rates and 95% confidence intervals (CIs) were computed by year, age, gender, and race. The rates were presented as the number of fatalities per 100,000 workers. Rate ratios (RR) and 95% CIs were computed to compare risk among different demographic categories. The employment estimates obtained from OES data were used for computing the fatality rates for the three occupational subcategories in 2008. Fatality rates and 95% CIs by occupational subcategory were calculated for 2008 only due to the previously mentioned limitation of OES data. Rates could not be calculated by worker characteristic for each of the three occupational subcategories because employment data were not available on age, gender, race, and employment history for these subcategories. The numbers of fatalities by injury event, work activity at the time the incident occurred, industry, and employment history were calculated for each of the three occupational subcategories. The results were then used to examine the causes of fatalities, the place where the fatality occurred, and characteristics of drivers who had the highest number of fatalities. Numbers of highway fatalities by age group were also computed for each of the three occupational subcategories.

Results

Fatalities by Year and Occupational Subcategory

A total of 5,568 occupational fatalities were observed among the group of truck drivers and driver-sales workers (Table I), representing 17% of the 33,641 occupational fatalities in the United States in the time period between 2003 and 2008. Truck drivers and driver-sales workers had an average annual fatality rate of 27.5 (95% CI = 26.8–28.2) fatalities per 100,000 workers, which represented a risk of fatal injury seven times higher than the average annual rate for all workers in the United States (3.9 per 100,000) during the study period. The number of fatalities and fatality rates varied by year, with the highest number and rate of fatalities observed in 2005 (n = 998, rate = 29.3 fatalities per 100,000 workers, 95% CI = 27.5–31.1) and the lowest in 2008 (n= 856, rate =25.2 fatalities per 100,000 workers, 95% CI =23.6–26.9). The difference in rates between 2005 and 2008 was statistically significant because their 95% confidence intervals did not overlap. For the entire time period, the majority of fatalities in the group of truck drivers and driver-sales workers were among heavy truck drivers (84.7%), followed by 9.5% among light truck drivers and 5.7% among driver-sales workers. Similarly, the highest fatality rate (44.8 fatalities per 100,000 workers, 95% CI = 41.6–48.0) in the group of truck drivers and driver-sales workers in 2008 was also among heavy truck drivers, followed by the rate of 10.7 fatalities per 100,000 workers (95% CI = 7.4–14.1) among driver-sales workers and the rate of 7.4 fatalities per 100,000 workers (95% CI = 5.6–9.1) among light truck drivers.

Fatalities by Demographic Characteristic

Fatality rates increased as drivers' age increased (Table II). Drivers aged 65 years and older had a risk of fatality 4.3 (95% CI = 2.9–5.7) times greater than drivers aged 15–19 years. Drivers aged 45–54 years had the largest proportion of the fatalities (28%) compared to drivers in other age groups. A higher proportion of older driver fatalities occurred in light truck drivers and driver-sales workers compared to heavy truck drivers. Men accounted for the majority of fatalities (96%) and had an elevated risk of fatality (RR=1.3, 95% CI=1.1–1.5) compared to women. Table III presents number and rate of highway fatalities by age group and occupational subcategory. Highway fatality rates also increased as workers' ages increased.

Fatalities by Occupational Subcategory and Employment History

In Table IV, approximately 90% of the fatalities in the group of truck drivers and driver-sales workers were from drivers working for pay or compensation (wage and salary drivers). Among the 3,633 fatalities that had recorded data for establishment size, 37% (1,358/3,633, the largest proportion) were from establishments with 1–10 employees. The distributions of fatalities by employee status and establishment size were similar across the three occupational subcategories.

Fatality Event

We examined fatality events by occupational subcategory (Supplementary Table SI). The most common contributing cause was transportation events among the three occupational

subcategories (accounted for 80% of fatalities among heavy truck drivers, 82% among light truck drivers, and 73% among driver-sales workers). The second common contributing cause was contact with objects and equipment among heavy truck drivers (10%) and light truck drivers (7%). In contrast, the second common contributing cause was assaults and violent acts among driver-sales workers (21%). The majority of transportation events among heavy truck drivers were single-vehicle crashes, while the majority of transportation events among driver-sales workers and light truck drivers were multivehicle crashes. It is worth noting that 8% of all fatalities among heavy truck drivers were caused by events of pedestrian or non-passenger struck by vehicle or mobile equipment and 2% were caused by railway events (crashes between trains and trucks).

Fatalities by Occupational Subcategory and Industry

We also examined the seven industries that had the largest numbers of fatalities for each of the three occupational subcategories (Supplementary Table SII). The majority (64%) of fatalities among heavy truck drivers were in the truck transportation industry. The other 36% of fatalities were distributed among a variety of industries. No single industry had the majority of fatalities among light truck drivers and driver-sales workers. The largest proportion of fatalities among light truck drivers was in the truck transportation industry and the couriers and messengers industry (15% each). The largest proportion (33%) of fatalities among driver-sales workers was in the food service and drinking place industry, followed by the publishing industry (except Internet) (29%).

Discussion

Strengths and Limitations

This study used data from the CFOI, which collects data on work-related fatalities to provide a continuous and accurate count of occupational fatalities in the United States. One limitation in the current analysis was completeness of data regarding employment history. In the current database, 35% had missing data on “establishment size.” Another limitation was the lack of appropriate employment data for certain driver subcategories, such as occupation by industry, number of drivers by employment status, establishment size in number of employees, and worker characteristic for the three occupational subcategories. Data on circumstances and scenarios leading to a fatal truck crash are needed to better understand risk factors associated with highway fatalities in the group of truck drivers and driver-sales workers. Police crash report data, such as the data collected by the Fatality Analysis of Reporting System (FARS) [NHTSA, 2013], provide detailed factors behind a fatal truck crash on the road, for example, road condition, traffic condition, weather condition, vehicle condition, and driver information. Studies observing truck driver driving behavior, performance, and collecting log book data in a naturalistic driving study (while driving a truck at work or performing tasks in a work environment) can provide some insight into the association among work schedule, fatigue, behavior, and the risk of truck crashes [Hanowski et al., 2009; FMCSA, 2010; Amandus et al., 2012].

Age and Risk of Occupational Fatalities

This study suggests that the risk of a highway fatality increased as driver's age increased. This result differed from the “U” shape association between truck driver's age and the risk of truck driver highway crash involvements reported by Duke et al. [2010]. After reviewing studies that reported age-specific crash rates for heavy vehicles for the spectrum of driver age that included drivers younger than 27 years and those over 60 years of age [Campbell, 1991; McCartt et al., 2000; Bunn et al., 2005; McCall and Horwitz, 2005], Duke concluded that heavy vehicle drivers younger than 27 years of age demonstrated higher rates of highway crash involvement, which decline and plateau until the age of 63 years where increased rates were again observed.

The higher fatality risk among older drivers has important safety implications in today's changing workforce of truck drivers. The U.S. truck transportation industry is projected to experience a shortage of drivers [Global Insight, 2005]. As a result of this shortage, more truck drivers may continue working after their retirement age. Our analysis of the CPS data suggested that the proportion of truck drivers and driver-sales workers who were 65 years or older nearly doubled from 2.8% in 2003 to 5.2% in 2008. In 2008, approximately 178,000 truck drivers and driver-sales workers were aged 65 years or older. In response to the change in age among these drivers, safety and health issues among older drivers warrant more attention. There is a growing body of literature on fatal injuries to older workers in other occupations and the overall working population [Meyers, 2005; Rogers and Wiatrowski, 2005; Myers et al., 2009; Jones et al., 2013].

Multivehicle Crash Versus Single Vehicle Crash

Findings from this study indicate that the majority of highway events among heavy truck drivers were the result of single-vehicle crashes, while the majority of highway events among driver-sales workers and light truck drivers were multivehicle crashes. Differences in the number of vehicles involved in a crash by occupational subcategory may have several explanations. First, studies [Bunn et al., 2005; NHTSA, 2009] suggested that driver fatigue and drowsiness are the most significant risk factors for fatal single-vehicle run-off-road crashes among all the potential risk factors including roadway alignment with curve, speeding vehicle, rural roadway, high speed-limit road, and adverse weather [NHTSA, 2009]. The job of heavy truck drivers is physically demanding. Being away from home for days and weeks at a time, driving for many hours in a row, loading and unloading cargo, and working long hours can be tiring [BLS, 2010]. Fatigue and drowsiness might contribute to the large proportion of fatal single-vehicle crashes among heavy truck drivers. Second, heavy truck drivers usually drive on interstate highways where single-vehicle crashes (i.e., runoff-road and rollover) are more likely to happen due to traveling at highway speeds, while light truck drivers usually drive locally in urban environments where multivehicle crashes are more likely to happen due to traffic congestion [NHTSA, 2009]. Third, it is possible that heavy trucks and tractor-trailers are prone to having single-vehicle collisions, such as a jackknife, rollover, or run-off-road, due to their size and configuration compared to light vehicles [Stein and Jones, 1988; Stigson et al., 2008]. Fourth, heavy truck drivers are less likely to die from a multivehicle collision compared to driver-sales workers and light truck drivers due to the size and weight of their trucks. In general, a heavy vehicle has more

protection for its occupants in a multivehicle crash than a light vehicle [NHTSA, 1995, 2003]. To prevent fatalities due to truck crashes among heavy truck drivers, strategies should focus on the risk factors related to single-vehicle crashes such as fatigue and drowsiness. To prevent fatalities due to truck crashes among driver-sales workers and light truck drivers, strategies should focus on multivehicle crashes.

Pedestrian Incidents

This study suggests that truck drivers were killed not only in transportation incidents as a driver but also as a pedestrian. In spite of the large number (438 or 8% of all the fatalities), few studies have investigated pedestrian incidents among heavy truck drivers in the United States. An Australian study [Jones et al., 2011] examined 47 work-related, non-crash, heavy vehicle driver fatality cases and suggested that 21 of these cases involved parking on an incline (slope), inappropriate brake operation, and truck rolling. However, the sample size was small in the Australian study. More studies are needed to better understand the circumstances and scenarios of how heavy truck drivers were killed as pedestrians by vehicles in the United States. NIOSH Fatality Assessment and Control Evaluation (FACE) program provides a potential resource of truck driver pedestrian fatality narratives [NIOSH, 2014].

Railway Incidents

From 2003 to 2008, a substantial number (109) of heavy truck drivers were killed in railway incidents or train-truck crashes. This type of incident might be relatively easier to prevent than other types of highway incidents since railroad crossings are small and controlled areas. Prevention strategies include truck driver training, safe-crossing procedures, railroad crossing design, visibility, signage, barriers, and crossing operating rules. FMCSA's regulations, Part 383.51, 392.10, 392.11, and 398.4, provide safe procedures for railroad crossings for drivers of commercial motor vehicles [FMCSA, 2011]. FMCSA also developed *Highway-Rail Grade Crossings: 7 Steps for Safety* [FMCSA, 2006a]. Efforts are needed to better disseminate these regulations, safety procedures, and tips to truck drivers to increase their awareness of the risk and to help them to adopt these safety practices.

Public Health Approach to Transportation Incidents

The public health approach to prevent transportation incidents considers injuries due to transportation incidents as the result of the interactions among drivers, vehicles, and environments from pre-event, event, and post-event time phases [Haddon, 1970, 1980, 1999]. This study suggests that truck drivers' age and gender are risk factors. Other common risk factors related to truck drivers, not explored in the current study, include seatbelt use, fatigue, distracted driving, other unsafe driving behaviors, driver safety training, sleep apnea, and obesity [Summala and Mikkola, 1994; Maycock, 1997; Howard et al., 2004; Cui et al., 2006; FMCSA, 2006b; Davey et al., 2007; George, 2007; Heaton et al., 2008; Bunn et al., 2009; Anderson et al., 2011]. As discussed previously, the vehicle size, weight, and configuration may contribute to the difference in the number of vehicles involved in crashes among heavy truck drivers, light truck drivers, and driver-sales workers. Other common vehicle factors may include vehicle condition and age, cargo type and weight, and in-vehicle

safety technologies (e.g., forward collision warning systems and electronic stability control devices) [Chen et al., 2005; Robb et al., 2008; Brodie et al., 2009; Christoforou et al., 2010]. The differences in number of fatalities by establishment size may be attributable to working conditions and safety culture. Large companies may have different work conditions and safety cultures than small companies. Other environmental factors may include road condition, traffic condition, hours-of-service regulations, and other relevant safety regulations [Kanazawa et al., 2006; Chen, 2008; Stigson et al., 2008; Fontaine et al., 2009; Hanowski et al., 2009; McKnight and Bahouth, 2009; Chen and Chen, 2010]. Effective prevention efforts should address these risk factors that are associated with drivers, vehicles, and environments.

Nontransportation Incidents

Differences in the leading nontransportation injury event among the three occupational subcategories are likely due to differences in job descriptions. For example, the large number of fatalities due to assaults and violent acts among driver-sales workers might be associated with their sales responsibilities to take orders and collect payments [BLS, 2010]. A more in-depth analysis of the fatalities due to assaults and violent acts is planned to examine circumstances of these incidents and potential risk factors. The large number of fatalities due to falls and contact with objects and equipment among heavy truck drivers and light truck drivers might be associated with their job responsibilities to load and unload their trucks. The Trucking Injury Reduction Emphasis (TIRES) program offers useful workplace solutions for preventing truck driver injuries due to falls and contact with objects and equipment [Rauser et al., 2008].

Employment History and Fatalities

Self-employed workers accounted for 9% of all drivers [Career Planner, 2012] and contributed 9% of all occupational fatalities in the group of truck drivers and driver-sales workers. This suggests that self-employed truck driver and driver-sales workers did not suffer a disproportionately large number of occupational fatalities. This result differed from the result for self-employed workers in all occupations. A study reported that although self-employed workers accounted for just 7.4% of the U.S. civilian workforce in 2001, they contributed to 20% of occupational fatalities in the United States [Pegula, 2004].

Although 35% of the fatality records had missing data on “establishment size,” the data shows that 24% of all fatalities among heavy truck drivers were from small-size establishments of 1–10 employees (the largest proportion among all sizes of establishments). The proportion could be higher if there were no missing data on “establishment size.” Data on employment by establishment size are not available in the CPS and the Occupational Employment Statistics. According to the Motor Carrier Management Information System 2000– 2002 data, small-size companies with 1–6 trucks accounted for 10% of the trucks in the United States [Chen et al., 2003]. Assuming that the small-size establishments with 1–10 employees as categorized in the CFOI approximately match the small-size companies with 1–6 trucks as categorized by the Motor Carrier Management Information System, then small trucking companies had a disproportionately large number of occupational fatalities, with about 10% of trucks contributing to at least 24% of all occupational fatalities among heavy

truck drivers. A recent NIOSH study of motor vehicle fatalities among oil and gas extraction workers also suggested that establishments with 19 or less employees had a motor vehicle fatality rate 4.2 times higher than the rate for establishments with 100 or more employees [Retzer et al., 2012].

Conclusions

Fatalities among truck drivers and driver-sales workers contribute substantially to the national burden of occupational fatalities. The majority of fatalities in this occupational group were among heavy truck drivers (85%) and due to transportation incidents (80%). Heavy truck drivers had the highest fatality rate (42.7 per 100,000) in this occupational category in 2008. A substantial number of heavy truck drivers were also killed as pedestrians struck by vehicles. Older drivers and male drivers had higher fatality rates than their counterparts. Findings from this study suggest a need for targeted interventions and further research. Better employment data are needed to separate the three occupational subcategories (driver-sales workers, heavy truck drivers, and light truck drivers) by worker characteristic and employment history for use in research and prevention efforts.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table I

Number, Proportion, and Rate of Occupational Fatalities Among U.S. Truck Drivers and Driver-Sales Workers by Year and Occupational Subcategory (CFOI*, 2003–2008)

	Truck drivers and driver-sales workers (SOC 53-3030[a])			Heavy truck drivers (SOC 53-3032)	Light truck drivers (SOC 53-3033)	Driver-sales workers (SOC 53-3031)
Year	Number	Rate[b]	95% CI[c]	Number (proportion[d])	Number (proportion[d])	Number (proportion[d])
2003	862	26.8	25.0–28.8	722 (84%)	96 (11%)	44 (5%)
2004	919	28.1	26.2–29.9	780 (85%)	94 (10%)	45 (5%)
2005	998	29.3	27.5–31.1	837 (84%)	99 (10%)	62 (6%)
2006	957	27.5	25.8–29.3	807 (84%)	90 (9%)	60 (6%)
2007	976	28.2	26.4–29.9	822 (84%)	85 (9%)	69 (7%)
2008	856	25.2	23.6–26.9	749 (88%)	67 (8%)	40 (5%)
Total	5,568	27.5	26.8–28.2	4,717 (85%)	531 (10%)	320 (6%)

*CFOI: Census of Fatal Occupational Injuries. Fatal injury numbers and rates were generated by the authors with restricted access to CFOI microdata.

[a]SOC: Standard Occupational Classification code: 53-3030 is sum of 53-3032, 53-3033, and 53-3031.

[b]Rate: number of fatalities per 100,000 workers using the Current Population Survey employment estimates.

[c]95% CI: 95% confidence interval for rate.

[d]Row proportion. The sum of the proportions of the total number of fatalitie across the three occupational subcategories (heavy truck drivers, light truck drivers, and driver-sales workers) may not add to 100% due to rounding.

Table II

Number and Rate of Occupational Fatalities Among U.S. Truck Drivers and Driver-Sales Workers by Age, Gender, Race, and Occupational Subcategory (CFOP*, 2003–2008)

	Truck drivers and driver-sales workers (SOC 53-3030[a])			Heavy truck drivers (SOC 53-3032)	Light truck drivers (SOC 53-3033)	Driver-sales workers (SOC 53-3031)
	Number	Rate[b] (95% CI[c])	RR[d] (95% CI)	Number	Number	Number
Age group (years)						
15–19	40	12.3 (08.5–16.1)	1	13	9	18
20–24	184	14.2 (12.1–16.1)	1.2 (0.8–1.5)	113	35	36
25–34	811	19.7 (18.4–21.1)	1.6 (1.1–2.1)	669	94	48
35–44	1,362	24.6 (23.3–25.9)	2.0 (1.4–2.6)	1,191	106	65
45–54	1,580	30.7 (29.2–32.2)	2.5 (1.7–3.3)	1,370	133	77
55–64	1,121	38.2 (35.9–40.4)	3.1 (2.1–4.1)	990	90	41
65 and older	465	53.1 (48.3–58.0)	4.3 (2.9–5.7)	367	63	35
Gender						
Female	206	21.0 (18.1–23.9)	1	124	27	55
Male	5,362	27.9 (271–28.6)	1.3 (1.1–1.5)	4,593	504	265
Race						
African American	743	26.6 (24.7–28.5)	1	633	77	33
White	4,569	273 (26.5–28.1)	1.0 (0.9–1.1)	3,885	430	254
Other[e]	256	33.4 (29.0–378)	1.3 (1.1–1.4)	199	24	33
Total	5,568	275 (26.8–28.2)		4,717	531	320

*CFOI: Census of Fatal Occupational Injuries. Fatal injury numbers and rates were generated by the authors with restricted access to CFOI microdata.

[a]SOC: Standard Occupational Classification code: 53-3030 is sum of 53-3032, 53-3033, and 53-3031.

[b]Rate: number of fatalities per 100,000 workers using the Current Population Survey employment estimates for workers 15 and older.

[c]95% CI: 95% confidence interval.

[d]RR:rate ratio. Groups with RR=1 are the reference groups for rate ratio.

[e]Other: includes other race groups and race not reported.

Table III

Number and Rate of Occupational Fatalities Due to Highway Incidents (OIICS Code = 41) Among U.S. Truck Drivers and Driver-Sales Workers by Age and Occupational Subcategory (CFOI*, 2003–2008)

	Truck drivers and driver-sales workers (SOC 53-3030[a])			Heavy truck drivers (SOC 53-3032)	Light truck drivers (SOC 53-3033)	Driver-sales workers (SOC 53-3031)
Age group (years)	**Number**	**Rate[b] (95% CI[c])**	**RR[d] (95% CI)**	**Number**	**Number**	**Number**
15–19	NR[e]			NR	NR	NR
20–24	133	10.3 (8.8–12.0)	1.0	76	32	25
25–34	587	14.3 (13.1–15.4)	1.4 (1.1–1.7)	482	76	29
35–44	949	172 (16.1–18.2)	1.7 (1.4–2.0)	829	82	38
45–54	1,065	20.7 (19.4–21.9)	2.0 (1.6–2.4)	936	80	49
55–64	758	25.8 (24.0–276)	2.5 (2.0–3.0)	665	63	30
65 and older	279	31.9 (28.1–35.6)	3.1 (2.5–3.7)	210	42	27
Total	3,805	18.8 (18.2–19.4)		3,209	384	212

*CFOI: Census of Fatal Occupational Injuries. Fatal injury numbers and rates were generated by the authors with restricted access to CFOI microdata.

[a]SOC: Standard Occupational Classification code: 53-3030 is sum of 53-3032, 53-3033, and 53-3031.

[b]Rate: number of fatality per 100,000 workers using the Current Population Survey employment estimates for workers15 and older.

[c]CI:95% confidence interval.

[d]RR: rate ratio. 20–24 age group is the reference group for rate ratio.

[e]NR: numbers cannot be reported because they do not meet BLS publication criteria.

Table IV

Number and Proportion of Occupational Fatalities Among U.S. Truck Drivers and Driver-Sales Workers by Employment Status, Establishment Size, and Occupational Subcategory (CFOP*, 2003–2008)

	Truck drivers and driver-sales workers (SOC 53-3030[a])	Heavy truck drivers (SOC 53-3032)	Light truck drivers (SOC 53-3033)	Driver-sales workers (SOC 53-3031)
	Number (proportion[b])	Number (proportion[b])	Number (proportion[b])	Number (proportion[b])
Employee status				
Work for pay or other compensation	5,016 (90%)	4,248 (90%)	493 (93%)	275 (86%)
Self-employed	492 (9%)	424 (9%)	31 (6%)	37 (12%)
Other	60 (1%)	45 (1%)	7 (1%)	8 (3%)
Establishment size in number of employees				
1–10	1,358 (24%)	1,151 (24%)	133 (25%)	74 (23%)
11–19	399 (7%)	331 (7%)	46 (9%)	22 (7%)
20–49	525 (9%)	437 (9%)	61 (11%)	27 (8%)
50–99	355 (6%)	316 (7%)	26 (5%)	13 (4%)
100 or more	996 (18%)	838 (18%)	87 (16%)	71 (22%)
Not reported	1,935 (35%)	1,644 (35%)	178 (34%)	113 (35%)
Total	5,568 (100%)	4,717 (100%)	531 (100%)	320 (100%)

*CFOI: Census of Fatal Occupational Injuries. Fatal injury numbers and proportion were generated by the authors with restricted access to CFOI microdata.

[a]SOC: Standard Occupational Classification code: 53-3030 is sum of 53-3032, 53-3033, and 53-3031.

[b]Column proportion. The sum of the proportions of the total number of fatalities over the employee status categories or the establishment size categories may not add to 100% due to rounding.